



# Office of Environment, Safety and Health

## **Converting ORPS Occurrence Data to QA Management Indicators**

**“Your submitted ORPS report information may be recorded for Quality Assurance purposes.”**

Presented at the 2006 EFCOG Annual Meeting

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# Office of Quality Assurance Programs

- ◆ The Office of Corporate Performance Assessment is responsible for DOE's Quality Assurance Policy management and interpretation through its Office of Quality Assurance (EH-31).
- ◆ As part of this responsibility, EH-31 is developing methods for extracting QA information from data sources such as ORPS, NTS, CAIRS, Type A and B investigations, etc.
- ◆ QA information of particular interest is that which can be related to leading indicators and management system performance.





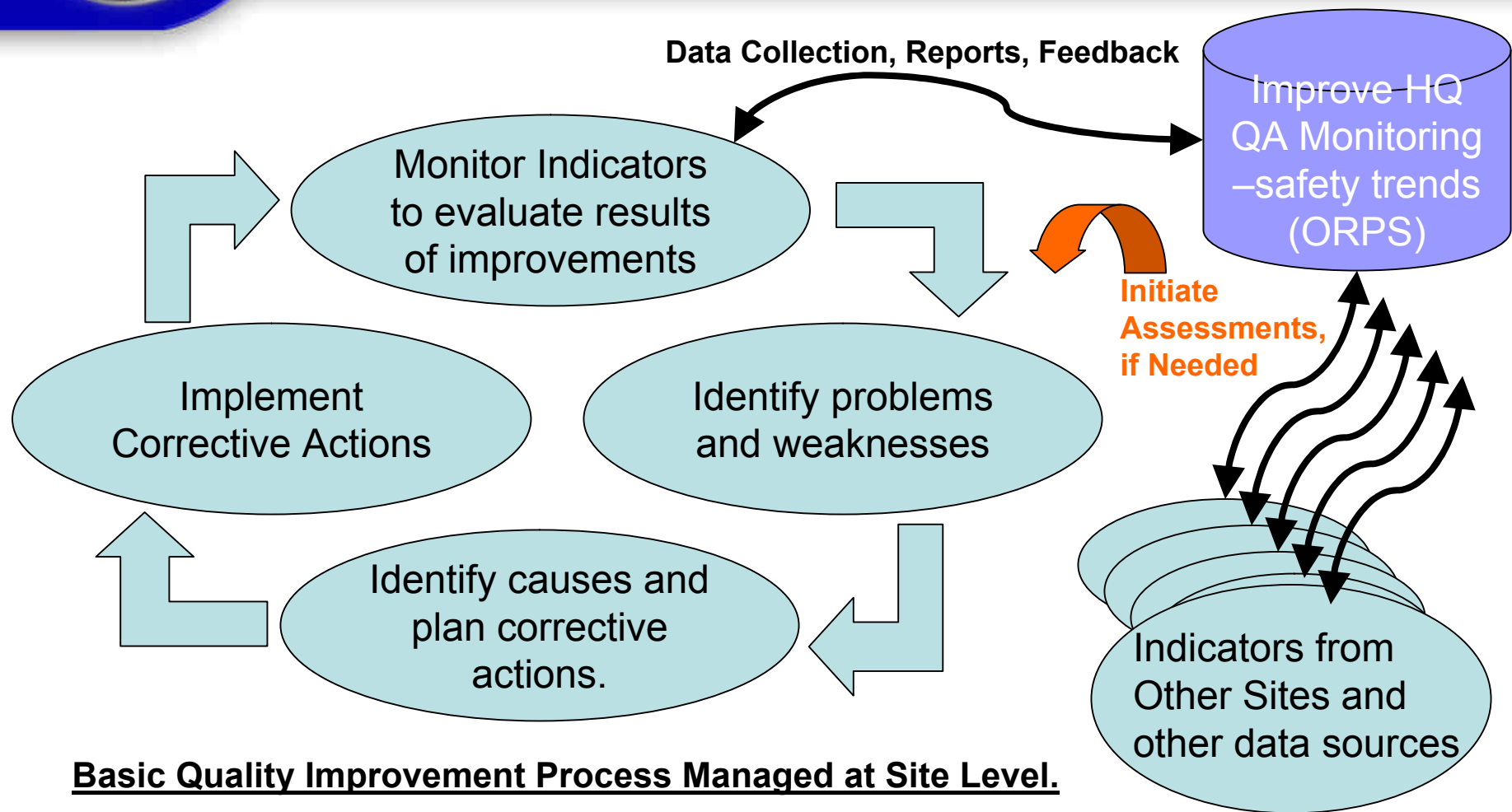
# What Are the Beneficial Goals?

- Improve precursor trending of QA indicators to reduce DOE vulnerability to significant failures. Focus DOE less on individual significant events or lagging indicators, and more on recognizing leading indicators to prevent such events.
- Give DOE Program Offices ability to monitor QA performance, and focus DOE assessment resources on areas of most need and highest risk.
- Improve the extraction of QA trending information from the existing data it collects.
- Provide insight on QA management systems performance.
- Provide contractor line management more information to improve operations.





# Monitoring Quality Program Performance





# What Is ORPS?

Occurrence Reporting & Process System (ORPS) is a data base for collecting information related to safety, environment, health, or operations (“Reportable Occurrences”).

- Did you know that we record over 1700 occurrences per year, complex wide, with retrievable Quality Assurance indicators buried within its data?
- 60 % of these occurrences contain valuable cause analysis information that can be grouped or binned into the criteria in DOE O 414-1C.
- These criteria can then be translated into QA management system indicators via the appropriate quality assurance program (QAP).





# Enhancing ORPS information

- A new QA data field is being added to the ORPS, to provide the site input in the event's QA evaluation.
- This QA Field will perform similarly to the existing ISM field.
- The QA field will ask the reporter to select all appropriate criteria related to management systems that could have, or should have prevented the event.
- Guidance will be provided to ensure a reasonably consistent selection process.
- This information is a tool for integrating safety management & quality assurance.





# New ORPS Field QA Selection Options

The QA Field consists of the ten criteria from DOE O 414-1C plus Safety Software QA and a “none” option for minor events with no QA influence.

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- |                                      |                                  |
|--------------------------------------|----------------------------------|
| <b>A. Program</b>                    | <b>G. Procurement</b>            |
| <b>B. Training and Qualification</b> | <b>H. Inspection</b>             |
| <b>C. Quality Improvement</b>        | <b>I. Management Assessment</b>  |
| <b>D. Documents and Records</b>      | <b>J. Independent Assessment</b> |
| <b>E. Work Process</b>               | <b>K. Safety Software QA</b>     |
| <b>F. Design</b>                     | <b>L. None</b>                   |





# QA Selection Field Guidance Example

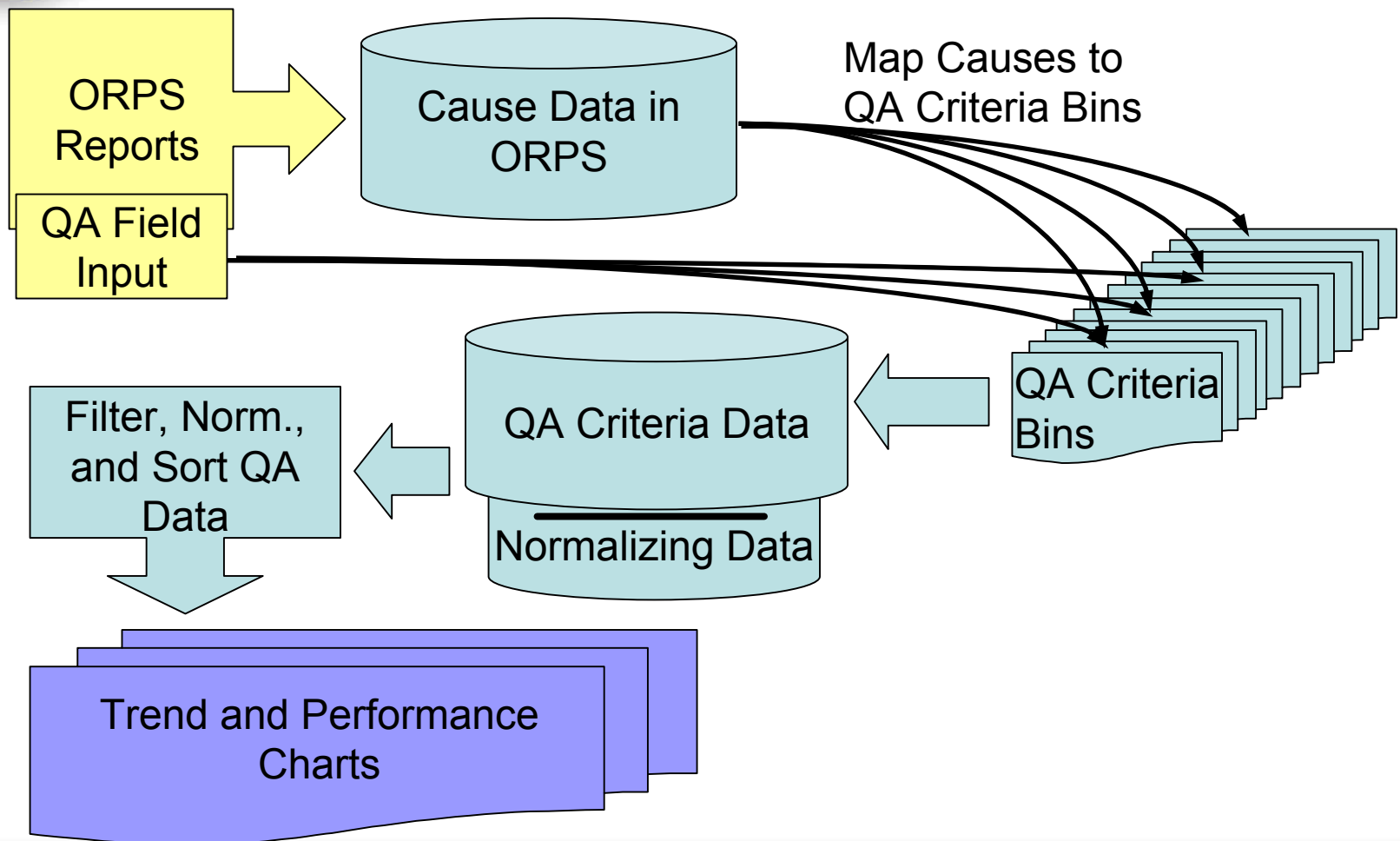
## F. Design

- ◆ Failure to use sound engineering/scientific principles and appropriate standards.
- ◆ Failure to incorporate applicable requirements and design bases in design work and design changes.
- ◆ Failure to identify and control design interfaces and coordination.
- ◆ Failure to verify/validate the adequacy of design products using individuals or groups other than those who performed the work.
- ◆ Failure to verify/validate work before approval and implementation of the design.
- ◆ Failure to specify product quality acceptance criteria
- ◆ Inadequate design
- ◆ Design input, process, analysis, or verification LTA
- ◆ Change control/configuration management LTA
- ◆ Lack of post-installation testing





# Mapping Causes to QA Indicators





# QA Trending and Performance Charts

## QA Performance:

- ◆ Complex wide contour maps allow DOE oversight management to monitor the QA progress over broad areas, rewarding strong performance and investigating highlighted “at risk” areas.

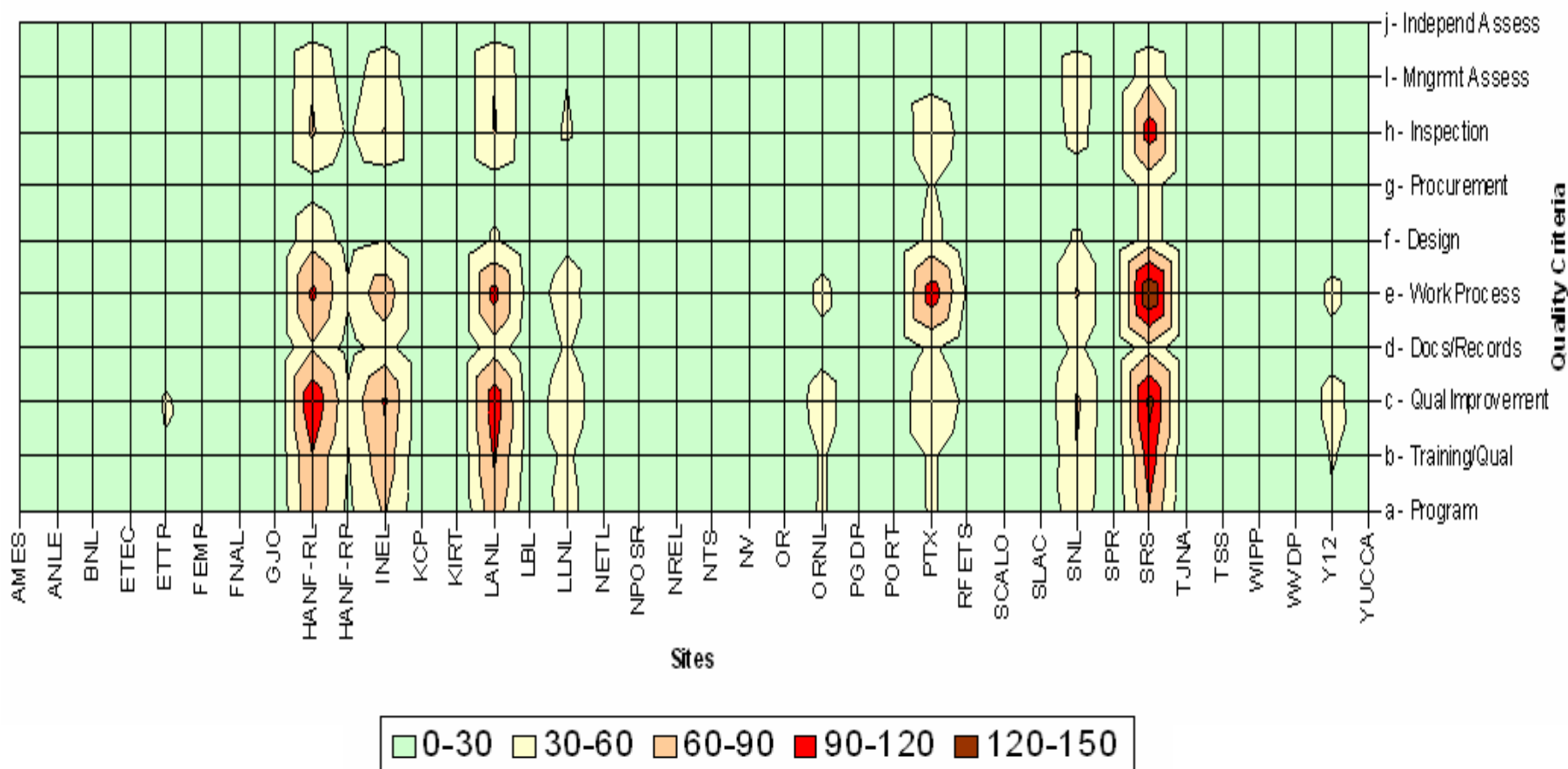
## QA Trending:

- ◆ Specific Site or Contractor trending charts can help identify specific areas of positive or negative trends and allow alignment with the Site’s QA tracking indicators.



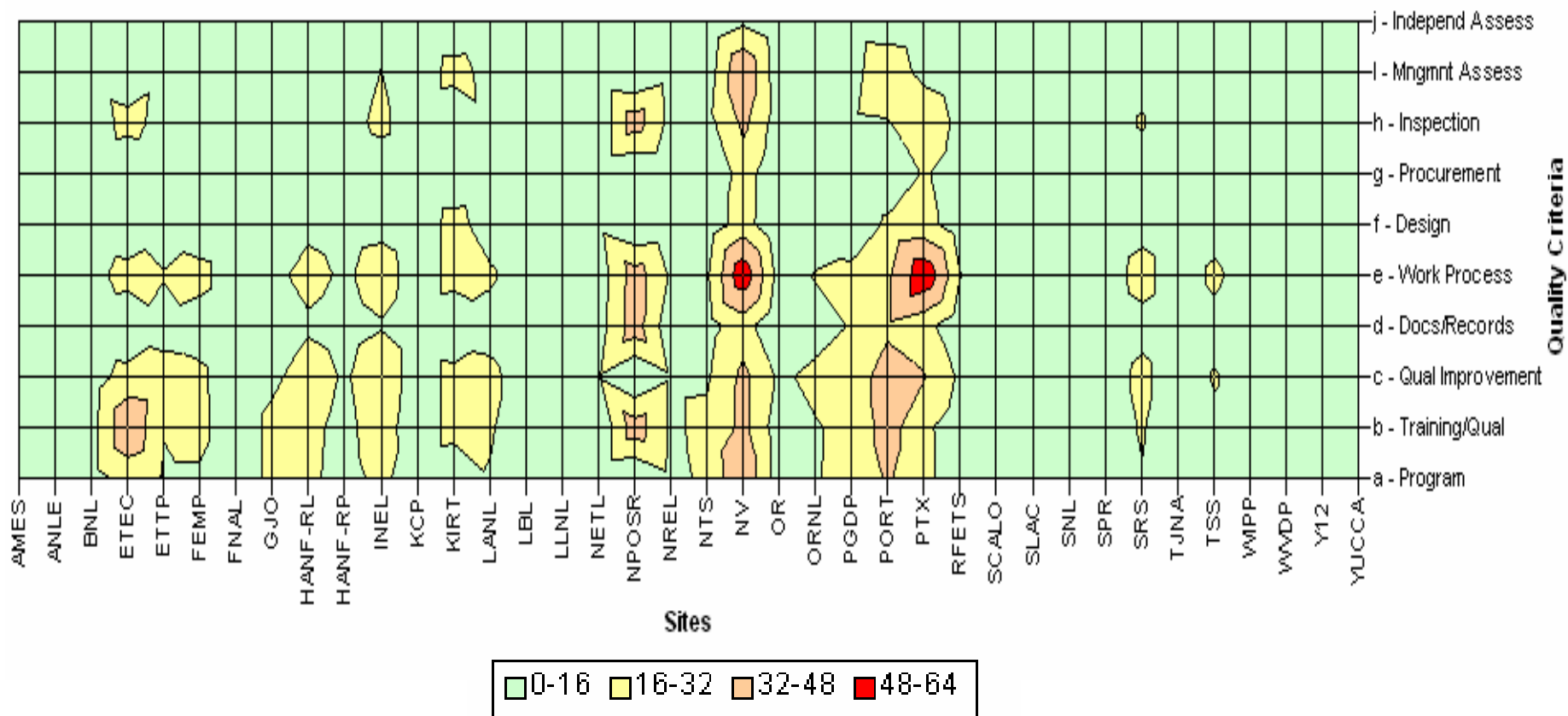


# Example 1 – 2005 Contour Charts (Non-normalized)



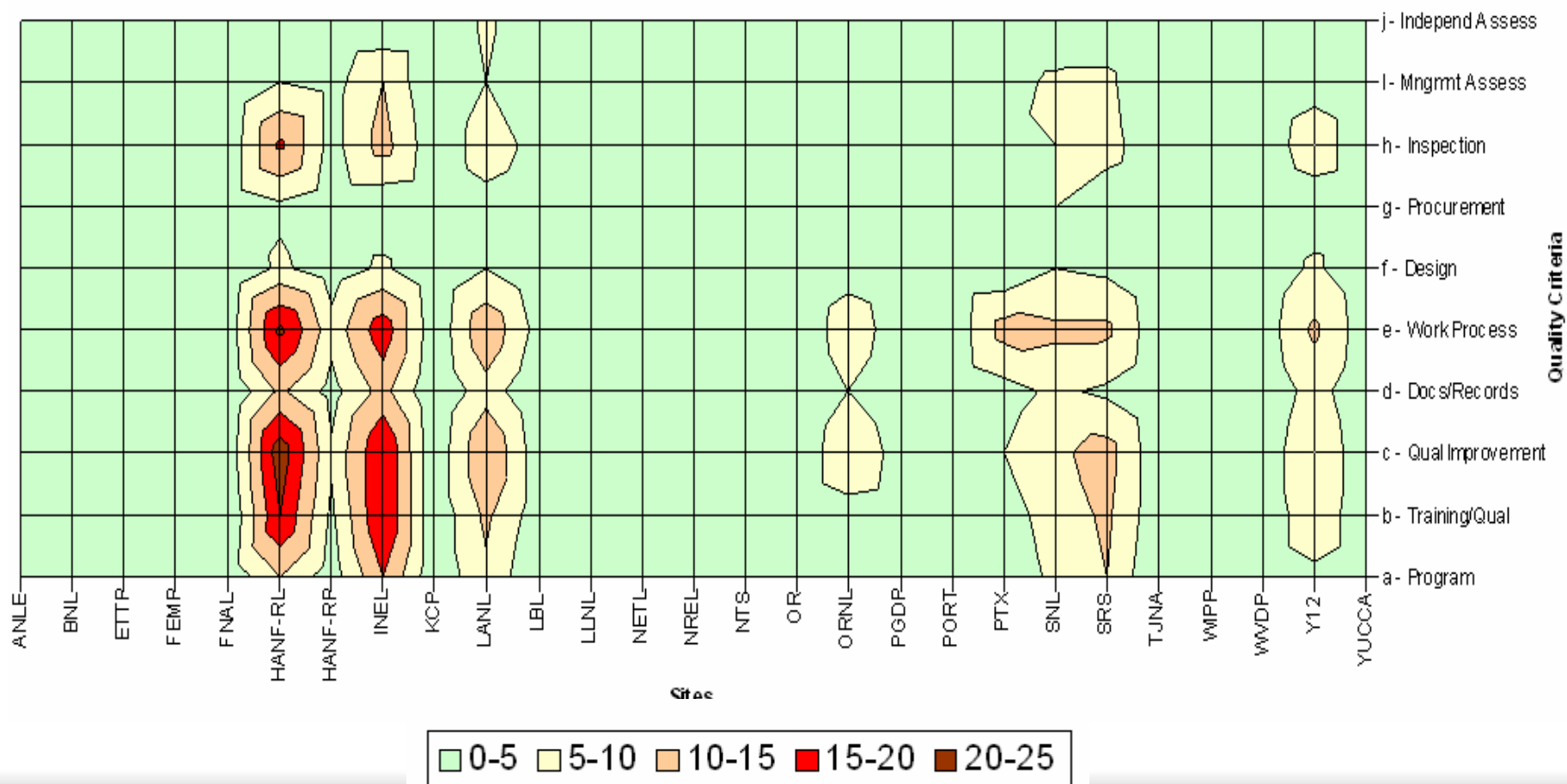


## Example 2 – 2005 Contour Charts (Normalized by man-hours)



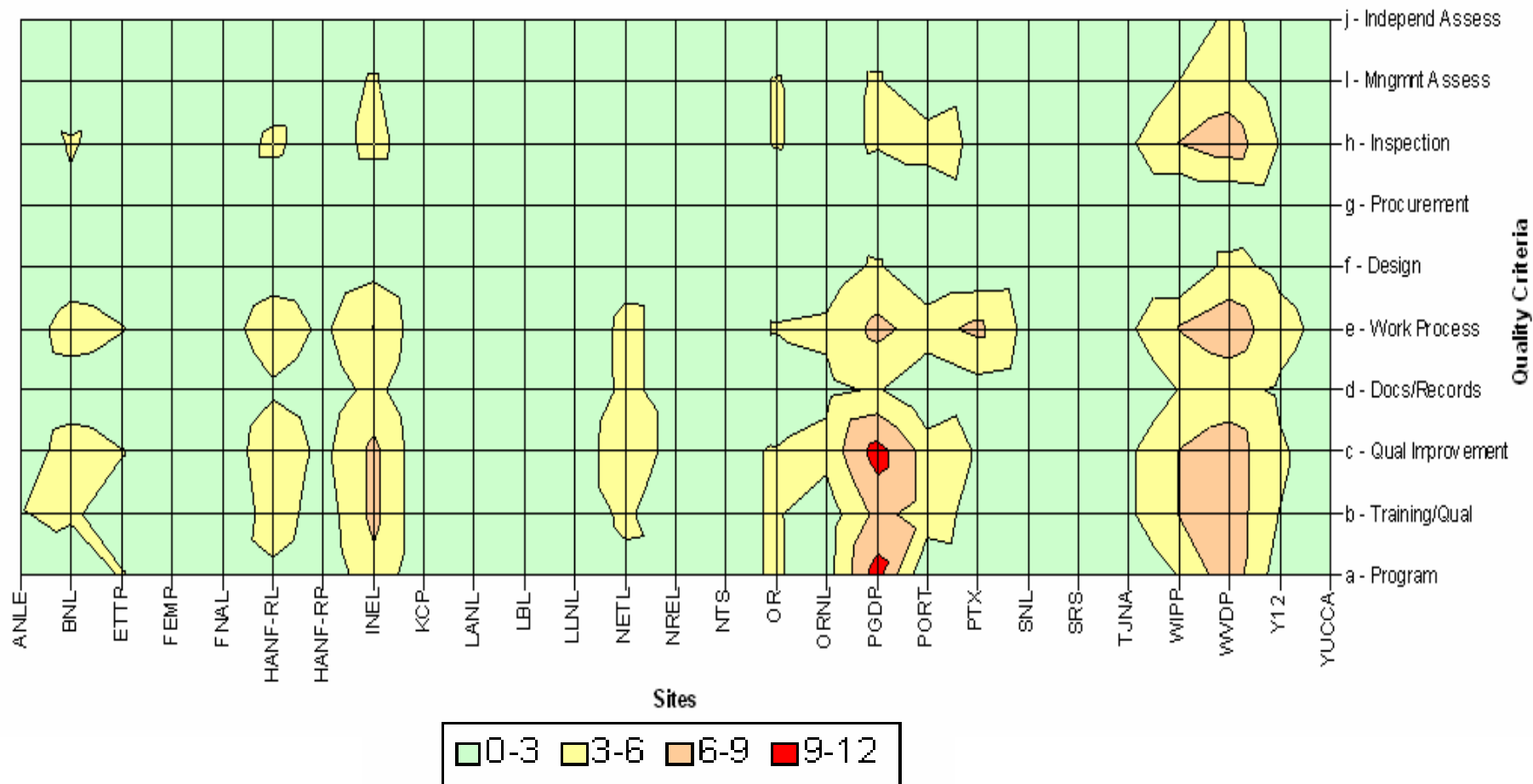


# Example 3 – 1<sup>st</sup> QTR 2006 Contour Chart – Non-Normalized



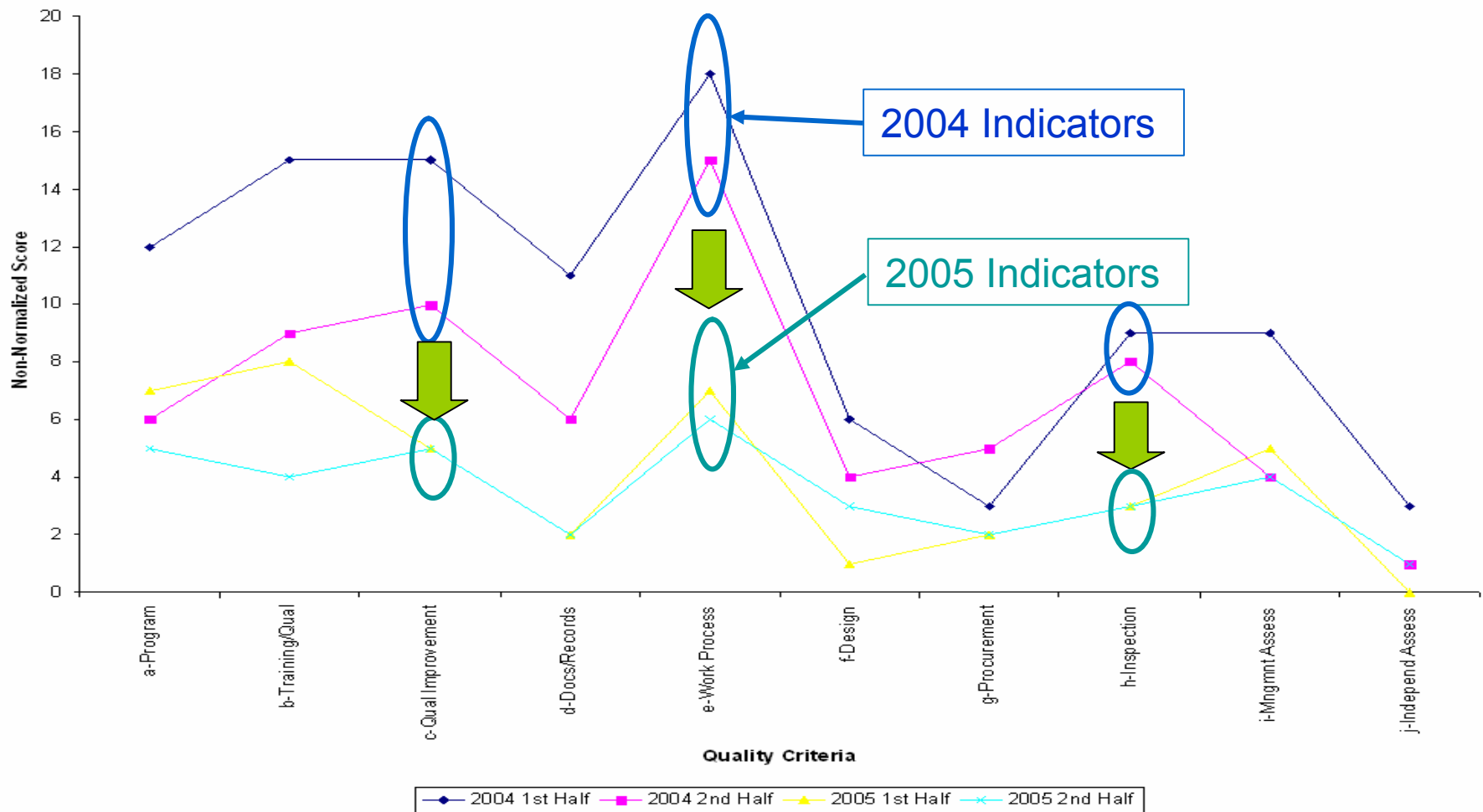


## Example 4 – 1<sup>st</sup> QTR 2006 Contour Chart (Normalized by man-hours)





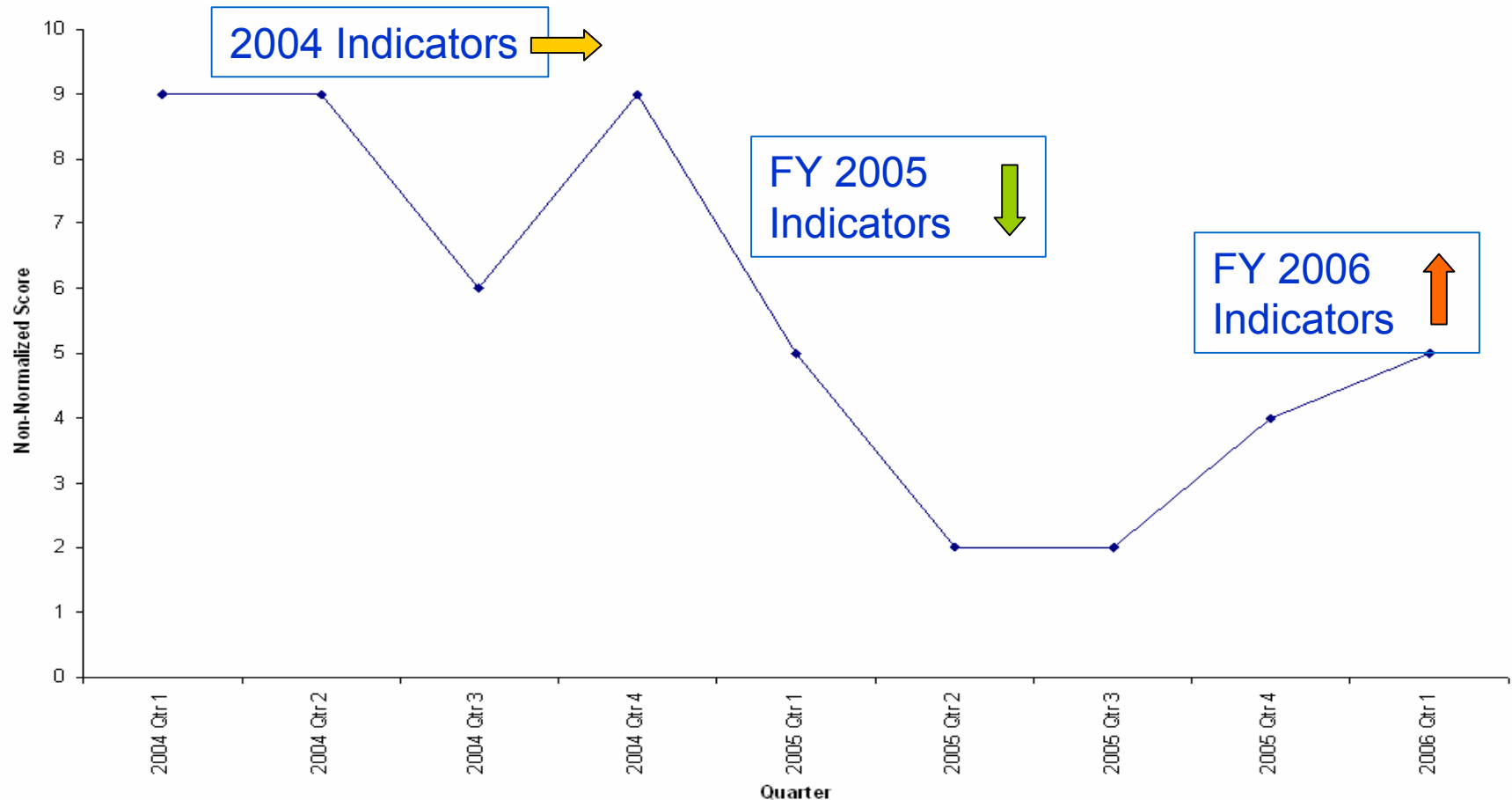
## Example 5 – Brookhaven Trending Charts (Semi-Annually)





# Example 6 – Brookhaven “Work Process” Trend (Quarterly)

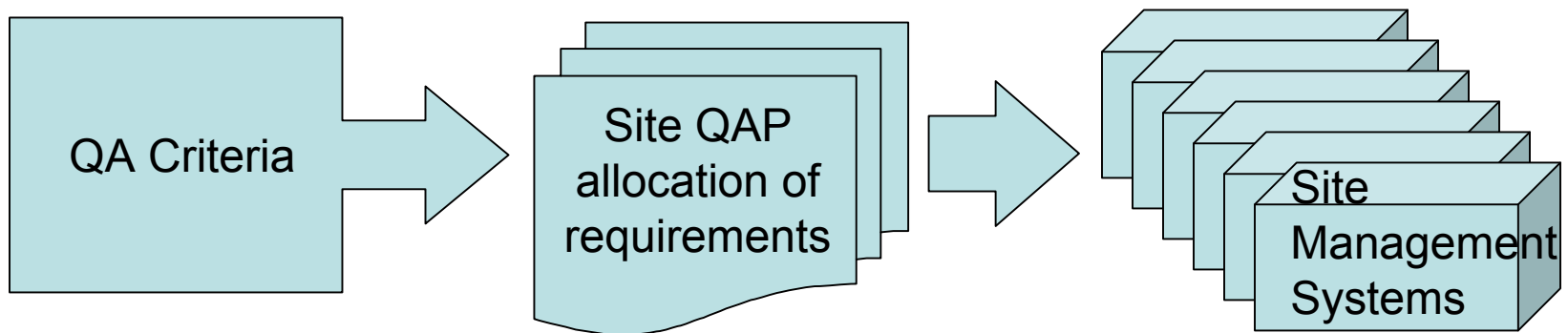
(Using “Work Process” as a Key Indicator)





# Mapping QA Criteria to Site Specific QAP Mgmt System Indicators

- ◆ The Site's Quality Assurance Program (QAP) Allocates the QA requirements and defines management responsibilities for implementation.



- ◆ As an example case, Brookhaven effectively monitors Management Systems performance on a quarterly basis for tracking & monitoring its integrated approach to its Quality Program.





# Potential uses of Indicators

1. DOE Oversight Management initiates communication with highlighted sites to compare results and collect additional information on possible causes and corrective actions from their more detailed monitoring systems.
2. Initiate targeted independent assessments as needed to drive QA management system improvements for “at risk” sites, who fail to effectively demonstrate pre-emptive responses to highlighted issues.





## Example Coordination with Site QA Programs

- ◆ Brookhaven National Labs (BNL) is working with EH-31 to provide a test bed as well as technical expertise needed to assess the effectiveness of QA measurement methods.
- ◆ Collaboration between HQ and the Field highlights opportunities for site-specific and complex-wide dialogue and problem solving.
- ◆ Ultimately, DOE seeks to be a “better informed” customer, not necessarily a “more informed” customer. A better informed customer is a better customer.

